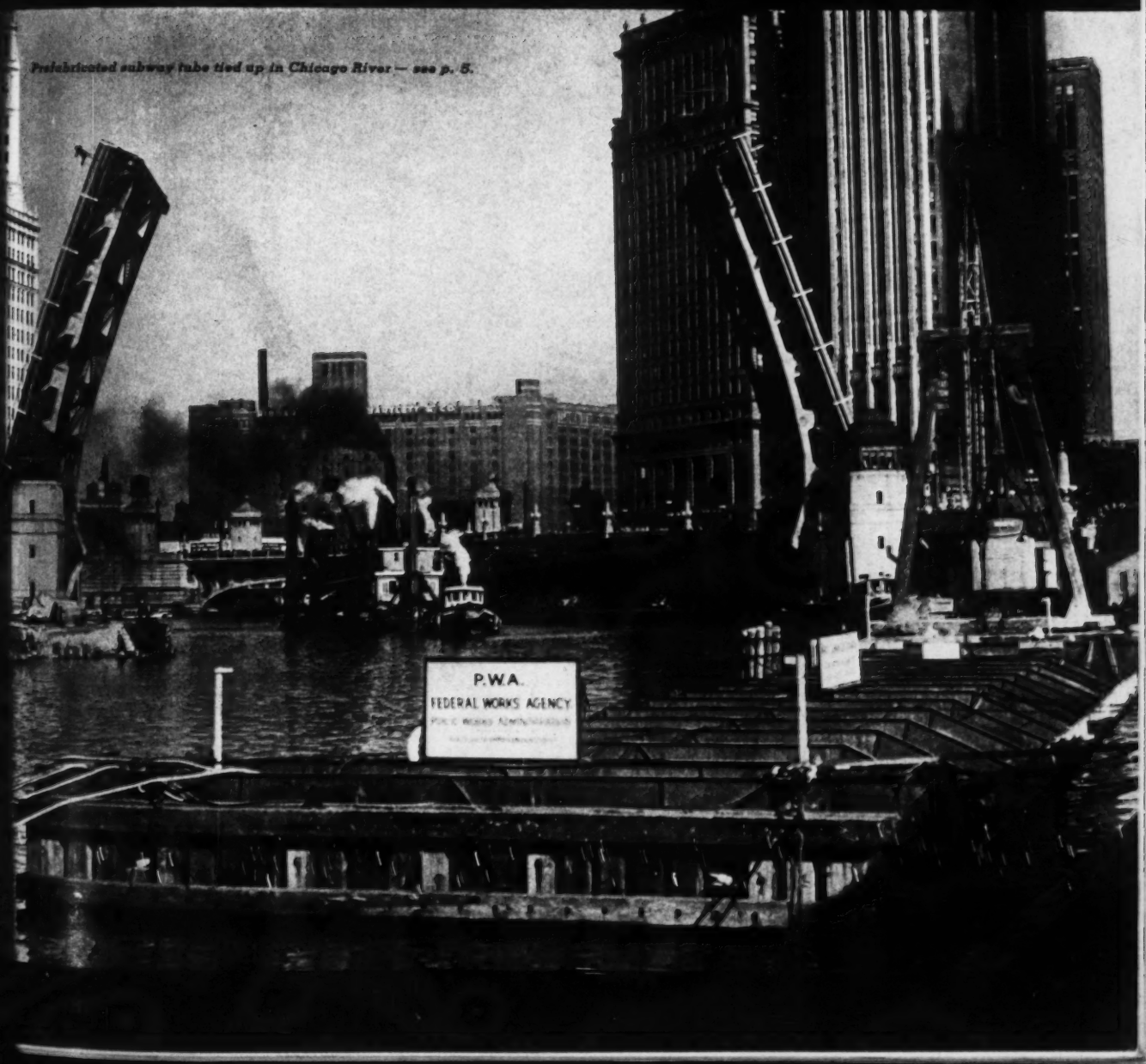
NEWS



Prefabricated subway tube tied up in Chicago River — see p. 5.

Piling in place in the Chicago River at Chicago, ready for the completion of a dock for the Omaha Packing Co.—Great Lakes Dredge & Dock Co., Contractors.

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ENGINEERING NEWS-RECORD

NEWS

Volume 123 NOVEMBER 2, 1939 Number 18

NOTES ON THE NEWS

Quick Surveys of Construction Events

▶Nine miles of belt conveyors are to be used to bring concrete aggregates to Shasta Dam. A proposal to substitute such a long belt conveyor system for rail transportation, made by the contractors, has been approved by the Bureau of Reclamation.

▶Cutting the cost of financing public housing during the construction period is proposed by the U. S. Housing Authority. Short term loans of private money would be used for the purpose.

▶The Battery Bridge project at New York was revived and then set back again last week. Appeals made to the President to set aside the adverse War Department ruling stressed the national defense angle, contending that the bridge would not block the Navy Yard and would be a useful military artery. The President did not agree.

▶Heard at American Welding Society Convention: Among reasons Bureau of Yards and Docks welds pipelines and steel piers is to minimize damage from bomb blasts . . . Welded rigid frame design for Boston Navy Yard structural shop permitted 9½ ft. reduction in total height over a riveted design . . . Army Engineers permitted all-welded cable drums for 350-ton gantry cranes at Bonneville Dam in place of usual cast steel design . . . Welding contributes to advance in construction equipment design at both La Plant-Choate Mfg. Co. and Harnischfeger Corp. because no scrapping of shop equipment or expensive patterns accompanies model changes . . . American Bridge Co. experience shows that welding of bridge shoes, railings, curbs and expansion dams accounts for a large proportion of total welding on a structure so that their design may have a major effect on the economy of the structure as a whole.

NEW ENGINEERING DEAN AT PRINCETON

Kenneth H. Condit, executive assistant to the president of the National Industrial Conference Board, New York, has been named dean of the engineering school at Princeton to succeed Dean Arthur M. Greene, Jr., who will retire in June. Condit graduated from Stevens Institute of Technology in 1908 as a mechanical engineer, received a civil engineering degree from Princeton in 1913 and taught in the engineering school there from 1913 to 1917. Following service in the air corps during the World War, Condit joined the editorial staff of *American Machinist* in 1919, becoming editor in 1921. He resigned from the editorial staff in 1938.

Building Gains

Building construction has gained 24 per cent in 125 American cities during the first nine months of 1939, according to Secretary of Labor Perkins.

USHA Expects Lower Construction Costs

Sees two per cent saving through new machinery to facilitate short-term financing

In a move expected to save nearly 2 per cent of the capital cost of construction of public housing, the U. S. Housing Authority this week announced it had set up machinery to facilitate short-term financing of the cost during the construction period. The plan is that instead of loaning money to an authority as soon as it starts work—at an interest rate of 3 to 3¼ per cent—USHA will promise to make a loan at the completion date of the project. With this promise as security, the local authority will ask bids on short-term "temporary loan notes," taking advantage of the current very low interest rates on short-term money (about ½ per cent). These temporary notes, of

(*Continued on p. 6*)

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Miami Buys Private Water System

Last week the city of Miami's offer of $5,250,000 was accepted by the Miami Water Co. for the city's private distribution system. The purchase has been under consideration for some time (*ENR*, Sept. 28, p. 387) and the company had previously asked $5,500,000.

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Bridge Floor Failure Causes Two Deaths

When a truck loaded with gravel was crossing the highway bridge spanning the Grand River about 2 miles north of Utica, Mo., Oct. 24, a section of the flooring collapsed allowing a truck to fall to the river bed 40 ft. below and resulting in the death of the driver and a passenger. The bridge was an old steel truss structure with wooden stringers.

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Engineers Discuss Railway Maintenance

Concrete deterioration, repair of masonry and cost of painting discussed in Chicago

Methods of maintenance and repair work on bridges and other structures were the main theme of papers and discussions at the annual meeting of the American Railway Bridge and Building Association, held in Chicago on Oct. 17-19. The problem of causes and remedies of deteriorated concrete was the subject of a report by S. T. Corey, assistant bridge engineer, Rock Island Lines. Supplementing the report was a paper on maintenance and repair of old masonry by J. F. Leonard, engineer of bridges and buildings, Pennsylvania R. R.

Steel bridge painting problems which result from deferred maintenance were dealt with in a detailed report by R. W. Johnson, assistant engineer, Chicago, Milwaukee, St. Paul & Pacific Ry. One of the major difficulties is the breaking and scaling of the old paint film so as to expose the bare metal, which difficulty hardly existed before the period of deferred maintenance. Life of the unbroken film may range from 2½ or three years near the seacoast to 10 or even 15 years in desert country. Cost of repainting increases considerably as soon as the old paint has begun to scale, the average labor cost increasing 35, 50 and 75 per cent for work done one, two and three years, respectively, after the proper time. For spot painting to check the damage, many railroads use such special coatings as cement, black oil, slushing oil, asphaltic paints, roofing compounds and rust inhibitors. These applications may have to be renewed in six months to three years, depending on conditions.

Rust penetrating compounds are being used as general bridge paints where structures are exposed to brine action. A conspicuous case is on a line near the Gulf Coast, where salt air and spray are serious factors. To check the severe rusting due to deferred painting, a rust-removing preparation was used, which stopped progress of the corrosion and formed an oily film on the metal, even under the heaviest rusting. But under more normal atmospheric conditions, such materials would not be economical, since ordinary bridge paints would have a much longer life. Increasing refrigerator-car traffic adds another factor to the problem of preventing corrosion.

Strengthening old bridges

Strengthening old bridges to enable them to carry heavier loads and traffic was the subject of an address by G. A. Haggander, assistant chief engineer, Chicago, Burlington & Quincy R. R. How to reduce slow orders in connection with bridge painting and repairs was discussed in a report presented by H. B. Christianson, division engineer, Chicago, Milwaukee, St. Paul & Pacific Ry. That deferred maintenance and high speeds make necessary increased attention to inspection and examination to insure that structure of concrete, steel and wood are thoroughly safe was noted in a report by E. C. Neville, bridge and building engineer, Canadian National Ry.

Treated timber

Building repair work was included in reports on the maintenance of roofs and windows of shops and engine houses by G. S. Crites, division engineer, Baltimore & Ohio R. R., and F. H. Soothill, chief estimator, Illinois Central R. R., respectively. A third report, on construction and repair work with treated timber by N. D. Howard, *Railway Engineering and Maintenance*, stated that it is better to have the timber preframed than to do the framing in the field. This results in greater service life, lower framing costs and more rapid installation. As to railway water stations, the trend toward longer runs of locomotives was noted in a report on pumping equipment by M. P. Walden, assistant supervisor, of the Louisville & Nashville Ry.

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$1,900,000 Provided For Arizona Housing

An allotment of $1,900,000 has been made by the U.S.H.A. to the city of Phoenix, Ariz., for slum clearance and low cost housing. The project will be developed on three different sites to segregate white, Mexican and Spanish families, with 131 multiple dwelling units being built to house 510 families.

Rentals will average $12.15 per month for an average of 4.8 rooms per family. Heating, water, electricity and refrigeration is to be included in the rental price.

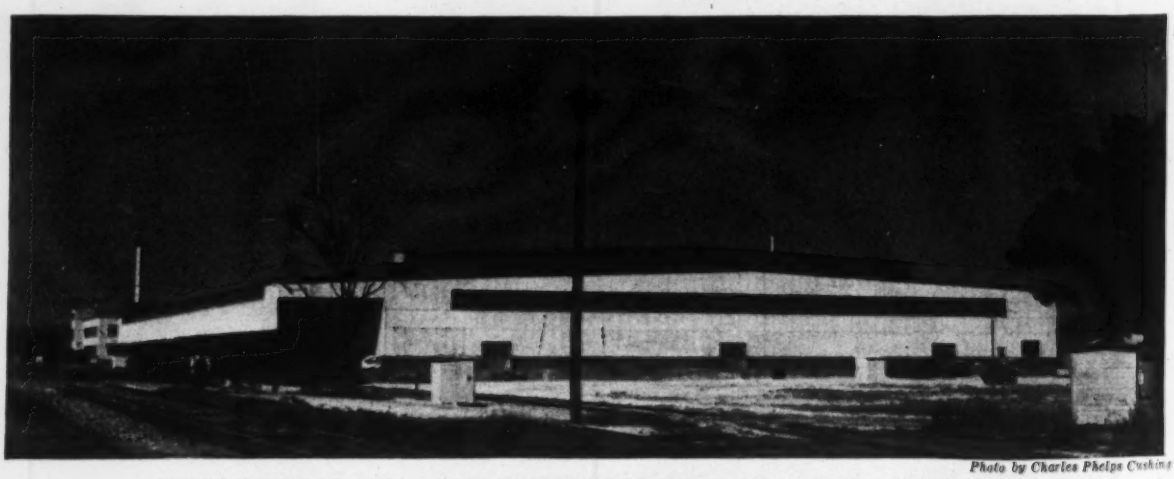

Photo by Charles Phelps Cushing

JOHNS-MANVILLE OPENS NEW FACTORY FOR WOOD PULP INSULATING BOARD

Some 3,500 persons turned out at the dedication on Oct. 19 of the new wood fiber insulating board plant of the Johns-Manville Corp. at Jarratt, Va. Located on a 142-acre plot near the source of raw material supply—the southern pine forests—the plant will employ 460 persons to turn out 100 million board ft. annually of a product that is widely used for sheathing, plaster base, roof insulation and, in decorative forms, for interior walls. The new plant, in which logs are ground into a pulp which is placed in sheet form in continuous drying furnaces to be discharged as an insulating board claimed to be highly moisture resistant and structurally strong, cost over $1,000,000. The output of the new plant will supplement that of the present plant at Oswego, N. Y.

Bored Tremie Caissons Permitted in Chicago

Some 40 of the 200 caissons required for the foundation of a Montgomery Ward & Co. building in Chicago are to be put down using the full tremie wet method described in the article on this building in *ENR* Oct. 12, p. 473. A technical advisory subcommittee on standards and tests recommended to the building commissioner that, as a scientific experiment, these 40 caissons be allowed to be filled by tremie without unwatering after the holes had been bored in the wet. The city council approved the recommendation, and work will now proceed. No revision of the building code is involved in the present experiment.

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Highway Safety Program Pays in Texas

Safety education within the Texas State Highway Department is paying big dividends, the accident frequency rate (the number of disabling injuries per million man hours worked) has dropped from 35.53 in 1938 to 21.62 in the first six months of 1939, or a percentage reduction of 39.15.

For the same period the accident severity rates—the number of days lost per thousand man hours worked—were 4.31 for 1938 and 2.24 for 1939, making a total reduction of 48.04 per cent.

As the basis of the safety program, all field employees are trained for first aid and each field employee of the department is required to attend at least one safety meeting each month.

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Zuyder Zee Reclamation Nears Completion

An important advancement has been made by Holland's engineers in the reclamation of the Zuyder Zee with the closing of a 15-mile dike extending to Urk Island and encircle 100,000 acres of Lake Yssel, the name now given to what remains of the Zuyder Zee.

When another small part of the dike is completed, Schokland Island will be inclosed and pumping will begin to make available for cultivation the second part of Lake Yssel. This work is expected to take three years.

Chicago Aerial Survey Photo

RECONSTRUCTION FOLLOWS GRAIN ELEVATOR FIRE

THE GRAIN ELEVATORS in the lower portion of this air view, taken in September, are the first reconstruction to follow the fire of last May which destroyed three elevators on the north (left) side of the slip and two on the south side at East 102nd St. and the Calumet River in Chicago. Twenty-six bins having a capacity of 1,000,000 bu., damaged but not destroyed, have been repaired and are now in use. The 36 bins under construction in the picture were completed in October. They are 25 ft. in diameter and 115 ft. high and hold a total of 1,700,000 bu. of grain. The shells are 7 in. thick, and were poured from a continuously moving platform and a set of forms raised 15 ft. per day. The elevators were built for the Chesapeake & Ohio Ry. Co. and have been leased to Rosembaum Brothers. The John S. Metcalf Co., Chicago, specialist in grain elevator construction, designed and built the structure.

Belt Conveyor Approved for Shasta

System costing $1,200,000 to be built by Columbia Construction Co., aggregate contractor

Use of a nine-mile belt line to convey concrete aggregate from the quarry to the site of Shasta Dam, major element in the Central Valley project in California, has been decided upon by the Bureau of Reclamation. The conveyor belt, estimated to cost about $1,200,000, is to be built by the aggregate contractor, Columbia Construction Co., under a change order on its $4,413,000 contract. Plan of using a conveyor belt was originated by Henry J. Kaiser, president of Columbia Construction, and proposed by him to the bureau.

Large quantities involved

Columbia's original contract obligated it to furnish 10,400,000 tons of sand and gravel f.o.b. cars at the quarry at an average price of about 43 cents per ton. The bureau was to arrange with the Southern Pacific Ry. for transportation to the damsite. The change order directs Columbia to build a conveyor belt capable of delivering 1,000 tons per hour and to deliver gravel at the damsite; the government will furnish right-of-way. For transportation of the first 2,420,000 tons, Columbia will receive 26½ cents per ton, for the next 7,580,000 tons 18 cents per ton, and for all deliveries thereafter 19 cents per ton.

Because of the saving resulting from elimination of delivery at the railroad siding, Columbia consents to a reduction in its price for processing the aggregate to 40 cents per ton. If, through breakdown of the conveyor or otherwise, it becomes necessary to move aggregate by rail, Columbia will stand the difference between 26 cents and the rail price. The contractor is to remove the conveyor within six months after completion of the project.

Aid in financing

To aid the contractor in financing the construction of the conveyor, the government will advance 90 per cent of its cost, deducting this amount from subsequent payments for transportation of aggregates.

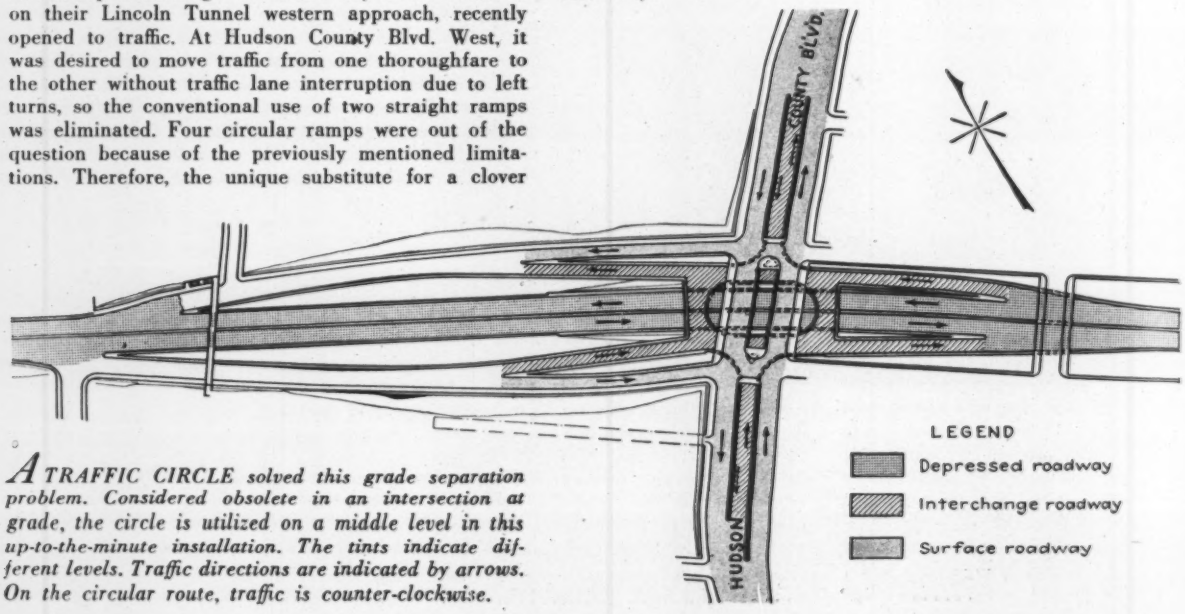
Net saving to the government from the transaction is estimated at $250,000. In addition, of course, the government gains the added security of having two means of aggregate transportation available.

Details of the design of the conveyor are up to the contractor. It is understood he plans to use 20 or 21 lifts.

Three-Level Intersection in Jersey

ROCK EXCAVATION and limited right-of-way caused engineers to go to three levels to accomplish a satisfactory intersection of a county boulevard and the New Jersey depressed roadway connection to Lincoln Tunnel, which leads traffic into midtown Manhattan, New York City.

LIMITED RIGHT-OF-WAY and the expense of rock excavation prompted Port of New York Authority engineers to develop something new in the way of intersections on their Lincoln Tunnel western approach, recently opened to traffic. At Hudson County Blvd. West, it was desired to move traffic from one thoroughfare to the other without traffic lane interruption due to left turns, so the conventional use of two straight ramps was eliminated. Four circular ramps were out of the question because of the previously mentioned limitations. Therefore, the unique substitute for a clover leaf shown on this page was evolved. Design was supervised by J. C. Evans, chief engineer of the Authority.



A TRAFFIC CIRCLE solved this grade separation problem. Considered obsolete in an intersection at grade, the circle is utilized on a middle level in this up-to-the-minute installation. The tints indicate different levels. Traffic directions are indicated by arrows. On the circular route, traffic is counter-clockwise.

Prefabricated Subway Tube for Chicago

Photos by Blaine S. Britton

AT ANCHOR in the Chicago River after a 15-mile tow up the shore of Lake Michigan is this prefabricated double tube section of Chicago's new subway. Across the stream is an indentation which marks the point where the north end of the tube will connect the land subway now being built. At the time the photograph was taken, the dredge was being moved in to complete removal of the State Street Bridge foundations. See also cover picture.

TOWED INTO POSITION a good two hours ahead of estimated schedule Oct. 19, the prefabricated twin steel tubes that will form the Chicago River link in Chicago's subway system were tied up within a few feet of where they will be sunk to the river's bottom.

The metal work was completed a week previously by the Graver Tank & Manufacturing Co., South Chicago, and the necessary concrete and timber bulkheads were then placed by Merritt, Chapman & Scott Corp., general contractors for the installation of the river section of the subway.

Various estimates of nine to twelve hours were made for the 15-mile trip up Lake Michigan from South Chicago, through the outer lock and down the Chicago River to the State Street anchorage. The trip began at five o'clock and by 10:30 the tow was through the harbor locks. At 11 it was tied up at State St. Here it will remain until its riverbed location is completely dredged. This should be by the end of November.

TIMBER BULKHEADS sealed the tubes' mouths to make possible the 15-mi. voyage. Afloat, the tubes were submerged 18 ft., with 5 ft. above the water. In plan, they measure 200 x 40 ft. Two stiffener ribs at the ends will connect the receiving cofferdam at the land ends of the subway.

Cheaper Construction

(Continued from p. 1)

course, will be paid off from the proceeds of the USHA loan when it is finally made.

The short term notes, which will be exempt from federal and probably from state taxation, have to be issued by the local authorities rather than by USHA because the rate at which USHA can reloan the money to local authorities is set by law at the going rate for federal financing plus half of one per cent.

On a test issue of notes last August, the Syracuse authority obtained $1,000,000 at a rate of .47 per cent. These were 9-month notes callable in three months.

$50,000,000 issue expected

USHA expects that a group of local authorities will issue within a few weeks short term notes totalling about $50,000,000.

For the past few months, ever since it became clear that the U. S. Housing Authority would get no more money from Congress this year, USHA has been putting pressure on a number of communities which have long outstanding earmarkings of funds but have not borrowed any money. The authority has written to a number of cities that, since many communities are anxious for loans, these cities must either complete very soon the local action necessary to get going on their projects or their earmarkings will be cancelled. About $5,000,000 of earmarkings are involved.

The delays in most cases represent situations in which there has been a change in local administration since the earmarking was made and the new government is not interested.

No earmarkings have yet been cancelled. In one case, Superior, Wisc., a $675,000 earmarking was fully reinstated when the city council passed enabling legislation permitting the housing program to go forward.

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Trafficscope Installed On Illinois Highways

An experimental "Trafficscope" installation, the first in Illinois, has been completed on U. S. Highway 66 south of Springfield to aid motorists using a steep viaduct over the Illinois Central R. R. Consisting of four banks of 40-in. glass prisms suspended 15 ft. above the highway, the "Trafficscope" is said to provide a sight distance of 2,000 ft. or more.

In the past the 5 per cent grades on the viaduct approaches limited the sight distances to 500 ft.

Structural Welding Progress Reviewed at Chicago

Of the 58 papers delivered at the 15 sessions of the 20th annual meeting of the American Welding Society in Chicago Oct. 22-29, about one-fourth contained information of direct interest to engineers and contractors in the construction field. Outstanding research reports covered fatigue strength in welds and a design method for taking advantage of joint continuity in steel frames. Papers on welding of construction equipment and of brass pipe emphasized shop and field technique while the use of the oxy-acetylene flame in surface hardening and strengthening and in descaling for painting were other significant subjects covered. A number of the papers will be abstracted in next week's issue.

George T. Horton, president of Chicago Bridge & Iron Co., was elected president of the society, succeeding H. C. Boardman, also of the Chicago Bridge & Iron Co. Horton, who has pioneered in the application of welding

GEORGE T. HORTON

to oil and water tanks, has been a prominent member of the civil engineering profession for over a quarter of a century during which time he has contributed substantially in time and money to its advancement, most recent examples in the welding field being the fatigue tests at Illinois and his establishment of a welding research laboratory at Rensselaer Polytechnic Institute, his alma mater. T. C. Smith of the General Petroleum Co., Los Angeles, was elected first vice-president and L. S. Moisseiff, consulting engineer, New York, second vice-president.

Labor Troubles Continue In New Mexico

When contractors and representatives of labor met recently in Santa Fe, N. M., no agreement was reached concerning the prevailing wage scale for New Mexico, a disagreement between the two forces having recently caused the cancelling of the opening of bids for a great deal of New Mexico work. The state labor commissioner a short time ago set up new wage rates roughly 10% higher than old rates. He has, however, allowed the old wage scale to be used for 30 days. As a result the state highway department last week held lettings on several projects and more are to be held Nov. 7. During the 30-day period the commissioner will try to determine the prevailing wage scale for the state.

The biggest contention is over the $1.25 wage for form wreckers and the $1.50 rate for men employed in setting reinforcing steel.

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Large Engineering School Formed at Chicago

Consolidation of two large engineering schools in Chicago, Armour Institute of Technology and Lewis Institute, has been announced by James D. Cunningham and Alexander D. Bailey, chairmen respectively of the two institutions. The Illinois Institute of Technology is the new name for the combined schools which will be provided eventually with a new campus located adjacent to the Loop district. The schools are to function separately until next fall when a merger of the facilities and courses will be effected with engineering courses restricted to Armour and science and art courses at Lewis. The present combined enrollment is 7,000, some 80 per cent of whom are taking engineering courses, which will make the new institute one of the largest engineering schools in the country. An operating annual budget of $1,250,000 is proposed.

Armour Institute was founded by P. D. Armour in 1892. Lewis was opened in 1896, having been endowed by Allan C. Lewis, at his death in 1877.

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Great Lakes Dredge Buys Boston Company

The Great Lakes Dredge & Dock Co., Chicago, has purchased for cash the M. Breymann Dredging Co. of Boston. Great Lakes has recently branched into the heavy industrial field and flood control work. The Breymann company has a dredge job in the Cape Cod Canal which is being taken over.

Waterworks Men Meet In San Francisco

The twentieth annual convention of the California Section, American Water Works Association, held in San Francisco Oct. 25-28, surpassed all previous attendance records with a registration of more than a thousand members and guests.

The program included papers on several phases of water treatment, on methods of keeping the public informed and on common problems of operation. More than half the time alloted to technical sessions was devoted to short, assigned discussions in symposiums on popular topics or to informal "round table" talks which this association has found particularly effective in bringing out experiences from various cities with resultant exchange of valuable information. Instructive exhibits of materials and equipment were on display.

Officers elected for the ensuing year were: president, Fred S. Porter, Long Beach; vice-president, John S. Longwell, Oakland. The 1940 annual convention will be held in Los Angeles in October.

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Iowa Highway Staff Cut Extensively

The Iowa State Highway Commission recently released a report showing that it has 683 fewer employees and a monthly payroll $63,000 below a year ago. The report shows the following reductions between Sept. 1, 1938 and Sept. 1, 1939: 392 maintenance employees, involving a payroll reduction of $31,000 per month; 271 engineering employees, involving a payroll cut of $30,000 per month; 20 statewide planning survey employees, involving a payroll reduction of $2,000 per month; and a maintenance staff reduction of 215 regular employees and 117 seasonal employees.

The report stated that on Sept. 1, 1938, the engineering staff included 886 employees receiving $120,000 a month. A year later the number was only 615 with wages totaling $91,000.

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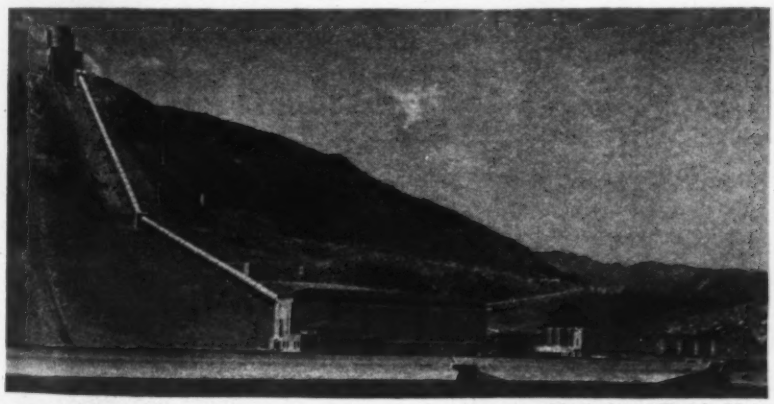
Housing Act Upheld By California Court

The California State Supreme Court last month upheld the state enabling act for low-rent housing against 17 specific charges. This brought to 15 the total number of state high tribunals upholding the constitutionality of public housing legislation.

The decision was handed down concerning a case in the court of Los Angeles County. Points involved included whether housing is a public purpose, whether the Los Angeles authority is regularly and validly organized under the law, whether the law attempts to delegate power of eminent domain to private enterprise, and whether the tax-exemption provisions of the law violate the state constitution.

Other states in which the state housing laws have been upheld by their highest courts are: Alabama, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Montana, New York, North Carolina, Pennsylvania, South Carolina, Tennessee, and West Virginia.



Westinghouse Electric Photo

COLORADO AQUEDUCT PUMPING STATION NEARS COMPLETION

THE EAGLE MOUNTAIN pumping station of the Colorado River Aqueduct is now being completed. One of five pumping stations along the 242 mi. of aqueduct which transports water from Parker Dam to the Cajalco Reservoir in California, the Eagle Mountain plant will lift the water 438 ft. for gravity flow to the Harfield Reservoir.

The plant, located 110 mi. from Parker Dam, is being equipped with three motor-driven pumps, each 200 cfs in capacity, and space is available for six additional units.

No Bids on Bonds For Niagara Bridge

Banking firms submit no bids for $3,800,000 of bonds and RFC shows no interest

All of the 72 financial institutions notified of the sale of $3,800,000 bonds for the Rainbow Bridge at Niagara Falls have failed to submit bids, according to J. B. McQueston, a member of the Niagara Falls Bridge Commission. The Reconstruction Finance Corp. has also shown no desire to purchase the bonds, apparently owing to the fact that the tentative earning statement, in its opinion, did not warrant the size of the loan requested.

Congressman Andrews of Buffalo, sponsor of the federal bills to authorize the construction of the bridge, is expected to suggest to Governor Lehman of New York that the state match a grant of $1,000,000 offered to the bridge commission by the Ontario government. With the $2,000,000 from the two government agencies as contributions, it is believed that the work could be started and that the bridge plans could be revised to cut the $4,500,000 cost estimate to a lower figure.

The New York Governor has indicated that a proposal to exempt debt service from the bridge should be left to the legislature to decide. He also favors the state taking title to the erection site on the American side of the river, action similar to that taken by the Ontario government in obtaining title to the land used on the Canadian side.

Secretary Kaumeyer, Niagara Falls Bridge Commission, following a meeting of the commission on Oct. 26, said that the bond issue had been reduced to $3,600,000 and changes made in the original plans which promised to make financing possible in a week or ten days. He said that the European war would not interfere with the execution of the work and that construction would start immediately after financing had been completed.

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Start of Friant Dam May Attract 25,000

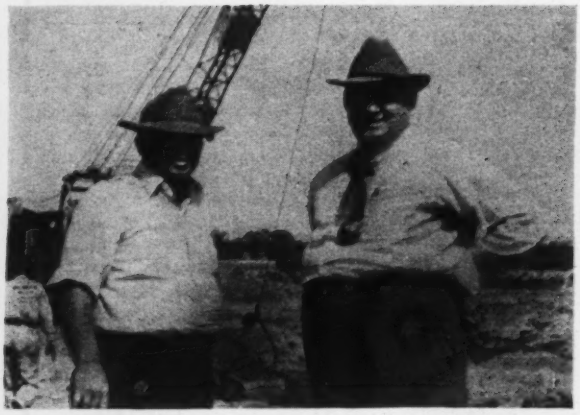
More than 25,000 people are expected to attend the ground breaking ceremonies Nov. 5 for the Friant Dam unit of the Central Valley project 20 miles north of Fresno, Calif., on the San Joaquin River. Secretary of the Interior Ickes, John C. Page, Commissioner of the Bureau of Reclamation, and Governor Olson are expected to be present.

Known wherever contractors get together is **John W. Cowper,** veteran contractor of Buffalo, N. Y. Here he is looking over the Commodore Perry low-cost housing project, one of two he is now building in Buffalo. Cowper's jobs always run smoothly, but on the Perry project he is even eclipsing previous work with a smooth-working job organization that delivers the goods from foundation to finish.

Hunted for months by an *ENR* editor, **J. H. Pomeroy** finally was cornered in a club car en route from San Francisco to Portland. Pomeroy is one of the three contractors who have combined to build the pontoon section of Seattle's Lake Washington Bridge. He had the approach contract for the Golden Gate Bridge, and recently has been awarded a big slice of the Navy's $13,000,000 Alaskan air base job.

A top-notch master mechanic is an asset on any construction job. Thompson-Markham Construction Co., of San Francisco, say they have a mighty good one in **C. E. Hauenstein.** His present job is to keep all the equipment in good shape for the Olmstead and Alpine-Draper Tunnels on the Provo water supply project in Utah, where high speed tunnel driving is the order of the day.

MEN AT WORK



Over a million dollars worth of work on Pinopolis Dam is under the direction of these men. They are **F. B. Daniels,** general superintendent, and **F. C. Sammons,** president and general manager of the Sammons-Robertson Co., of Huntington, W. Va. Their outfit has a $1,105,000 subcontract from Central Engineering Co., Davenport, Iowa, including all earthwork on west Pinopolis Dam and foundation excavation for lock and power house, a total earth moving contract of about 2,230,000 cu.yd. Pinopolis Dam is a part of the Santee-Cooper project in South Carolina.

These three men, all superintendent for the Franklin Contracting Co., Newark, N. J., handle a good share of the asphalt paving work in northern New Jersey. At the left is **J. R. Strother,** who gets rid of the stuff the other two put out, for he is in charge of the paving crews. In the center is **I. Peter Zito,** in charge of the asphalt plant, who was responsible for the installation of the electric tank heaters described in our issue of Aug. 3, 1939. The last gentleman is **D. C. Britt,** who runs the quarry from which the aggregates are obtained.

Warren Roberts Retires; Roberts & Schaefer Head

Warren R. Roberts, for more than 35 years chief executive of Roberts & Schaefer Co., engineers and contractors, Chicago, Ill., has retired and is soon to make his home in Miami, Fla. Roberts graduated from the University of Illinois in 1888 with a civil engineering degree. Following railroad and bridge work for a short time in the middle-west and, after two years with the department of public works at Chicago, he organized the Roberts & Schaefer Co. in 1904 to become president of the firm. Although continuing to act as president of Roberts & Schaefer, he was employed by the War Department in Washington in 1917 as the executive officer in the construction division.

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CAA To Obtain Abingdon Laboratory

The Public Roads administration is going to leave its new Abingdon testing and research laboratory before it is able to get nicely settled. The Abingdon Laboratory is to be turned over to the Civil Aeronautics Authority, and PRA will acquire a new laboratory. A grant of $1,450,000 has been made for the purpose from PWA funds impounded for the use of CAA from PWA programs prior to the 1938 appropriation; these earlier programs had no starting and completion date provisions such as are included in the current program.

The Abingdon Laboratory is located immediately adjacent to Washington's new Gravelly Point airport and was located there before the airport site was chosen. It is therefore felt that the laboratory is better adapted to the needs of the Aeronautics Authority. No site has yet been selected for the new roads laboratory, but Public Roads Administration will not move out of Abingdon laboratory until its future building is completed.

• • •

Iowa Cities Construct Sewage Disposal Plants

Since 1930, 91 Iowa municipalities with a population totaling 600,000 have constructed new sewage treatment plants. This brings the total to 267 for the state, fourth highest number for any state in the union, according to A. H. Wieters, public health engineer of the Iowa state department of health.

In addition nine major meat packing plants and 13 canneries have installed treatment plants.

Minnesota Road Funds May Be Transferred

Legality of a plan to transfer approximately $1,000,000 of road funds to state treasury for general administrative expense is under consideration in Minnesota, and is provided for in a section of the state reorganization act, passed last Spring, which allows a 5 per cent levy upon self-supporting departments for their share of the general cost of state administration. It has been proposed that this plan may be applied not only to the state's road revenues but also to federal money turned over to highway aid.

• • •

Engineering Training Surveyed at Toronto

Dugold C. Jackson, emeritus professor of electrical engineering at Massachusetts Institute of Technology, has been retained by the University of Toronto to make a survey of the engineering educational facilities provided at the university through its faculty of applied science and engineering, according to an announcement of H. J. Cody, president of the university.

The proposal to have this survey made came from the engineering alumni association, and the board of governors have commissioned Jackson to come to the university during the present term to begin his survey. Funds are being provided from the Walberg Trust.

• • •

Funds Made Available For Texas Flood Work

A WPA grant of $2,000,000 as the federal government's share of the total cost of $2,800,000 for the construction of a drainage and flood control system for Harris County, Tex., has been approved. Construction of the project is to start within the next 30 days, according to Jack Rafferty, county engineer.

The county will contribute $500,000 in bonds and will be allowed $40,000 additional credit for use of equipment and technical services of the county engineering staff. The port commission will be credited with $20,000 through contribution of barge service, etc. The drainage district will put up $86,000. The city of Houston is to contribute $42,000, the remainder of the sponsor's share to come from county tax moneys.

The program calls for the expenditure of $1,700,000 in Houston and the remainder in the county.

Fight Continues For Battery Span

Triborough Bridge Authority appeals direct to President but receives negative answer

The Triborough Bridge Authority of New York City vainly appealed to President Roosevelt to set aside the ruling of Secretary of War Woodring disapproving the proposed bridge to connect the Battery in lower Manhattan with the Borough of Brooklyn. Woodring considers the project a hazard to national defense while the authority contends that the bridge would "be of material aid to national defense, far outweighing any remote hazard it may create." The President upheld Woodring in a letter dated Oct. 30.

Mayor La Guardia of New York has also appealed to President Roosevelt, declaring that the alternative of a vehicle tunnel as suggested by the Secretary of War would cost $89,000,000 compared to $44,000,000 for the proposed bridge. He asked that the Secretary's decision be set aside and the decision be left to a body of experts.

The authority has strongly challenged the contention that the bridge would be vulnerable in time of war. Instead, it is declared that it would be less likely to be made useless by aircraft than a tunnel with its ventilation towers which could be destroyed more easily. The authority stated further: "A careful analysis of all circumstances, some in themselves extremely remote, which would have to combine in order to bring about such a situation must lead to the only reasonable conclusion that the hazard to access to the Navy Yard referred to by Secretary Woodring is practically non-existent. As a matter of fact, the Navy Yard itself, as well as power plants and other necessary facilities, offer much more simple and desirable targets from the point of view of bombing by enemy planes than the bridge does."

It was pointed out by the authority that with revised plans for the bridge its center anchorage would be at the northern end of Governors Island and could be constructed so as to provide direct access to the island.

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Crossing Elimination Scheduled for New York

A 1940 grade crossing program estimated to cost $14,600,000 for eliminating 55 railroad grade crossings in New York State, at an estimated cost of $14,600,000, is now under study, according to an announcement by the Public Service Commission.

MEN AND JOBS

MAJOR W. G. SWAN, civil engineer of Vancouver, B. C., has been appointed engineer in charge of construction activities, Munitions and War Supply Board of Canada. Swan will be located at Ottawa. Major projects in Canada with which he has been identified include construction of the Pattullo bridge across the Fraser River at New Westminster, B. C. at a cost of $3,500,000, and the $6,000,000 Lions' Gate bridge across the entrance to Vaucouver harbor. Major Swan will be succeeded by H. A. RHODES, who has been working with Major Swan for the past 11 years. Rhodes has had extensive experience as a structural engineer, as supervising engineer and as a designer.

UEL STEPHENS, associate regional PWA engineer in Texas, has been appointed assistant regional director and regional engineer. Stephens, a graduate of Texas A. and M. College, served as city engineer for Waco, Tex. in 1919. He was also for a time engineer of Runnels County. In 1933, when he became associated with PWA, he was engaged in private practice. With PWA he has worked as engineering examiner, as chief engineer of the Texas state office, and since 1937 as associate regional engineer.

ALBERT L. DONNELLY, Hartford, Conn., has been appointed director of highway maintenance for the Connecticut State Highway Department. Donnelly graduated from Yale University in 1908 with a degree in civil engineering. He became business manager of the highway department in 1931, and this year was named acting assistant deputy commissioner in the bureau of maintenance.

CHARLES M. DAVIDSON, assistant sanitary engineer with the Kentucky State Board of Health, has been named sanitary engineer for Louisville. The appointee is a graduate of the University of Kentucky.

JAMES C. CLARK, engineering instructor of the University of Arizona has been appointed to serve for another year as a member of the committee on engineering economy in the Society for the Promotion of Engineering Education.

KENNETH R. WEBB, in charge of state roads in St. Mary's County, Md. for nearly 12 years, has been named assistant district engineer. With his new duties he will be in charge of state roads in Charles, St. Mary's, Calvert and Prince Georges counties. CHAPMAN THOMPSON, Hollywood, Md., will succeed him.

KENT F. EHRMAN, Bureau of Reclamation engineer, has been transferred to Bend, Ore. where he will act as office engineer on the Deschutes project.

DON SUTHERLAND, engineer with the Colorado State Highway Department for the past several years, has accepted a position with the Western Portland Cement Association.

B. N. SOUDER, graduate of Kansas and Harvard Universities and E. P. MARTIN, graduate of Massachusetts Institute of Technology, have been added to the Colorado engineering forces of the Bureau of Reclamation.

J. W. GORDANIER, assistant engineer with the Bureau of Reclamation, has resigned to accept a position with the U. S. Navy Civil Engineering Corps, at San Francisco.

E. S. HUNTINGTON, Bureau of Reclamation engineer, in Colorado, was transferred last month to the Central Valley project in California where he will be office engineer at Friant Dam.

JOHN LUNDBERG, JR. and E. V. CHETTLE, assistant engineers with the Bureau of Reclamation, have been transferred from work in Colorado to the Tucumcari project.

R. R. RANDOLPH, associate engineer, U. S. B. R., and A. B. ELIAS, assistant engineer, U. S. B. R., both resigned recently from positions in Colorado to accept appointments with the U. S. Engineers at Tulsa, Okla.

L. M. ALEXANDER, assistant engineer, Bureau of Reclamation, last month was transferred from a Colorado project to Phoenix, Ariz. With his new work, he will be inspector on the transmission line under construction between Parker Dam and Phoenix and the line between Parker Dam and Blaisdell.

F. J. VON ZUBEN, formerly a PWA engineer examiner, has returned to private practice as consulting engineer at Austin, Tex.

HERBERT R. FRANTZ and HARRY H. HOFFMEYER, both of Baltimore, Md., have organized the Frantz Construction Co. with offices in Baltimore. Both men were formerly associated with the M. A. Long Co., Baltimore.

LIEUT. COL. D. O. ELLIOTT, U. S. Army engineer, has been notified that he will be transferred from Cincinnati, Ohio to Fort Devens, Mass.

W. E. SIMPSON, JR., Texas State Highway Department, has resigned to do graduate work in Massachusetts Institute of Technology this year.

H. P. HOSKINS, formerly resident engineer for Consoer, Townsend & Quinlan, Chicago, is now field engineer for the Clay Products Association in the states of Iowa, Nebraska, Minnesota and the Dakotas.

JOHN H. HANDE, accounting engineer with the Baltimore & Ohio R. R., has been made auditor of capital expenditures at Baltimore. Hande, after receiving his engineering education at the University of Wisconsin, in 1905 joined the Chicago & Northwestern Ry. to act as assistant engineer until 1911. From 1911 until 1914 he served as division engineer with the Duluth, Winnipeg & Pacific Ry. on construction of a line from the Iron Range to Duluth, Minn. He joined the Baltimore & Ohio in 1917 as assistant engineer on valuation of the railroad's Chicago terminal property. In 1918 he became special engineer on the staff of the chief engineer, Western Lines, Cincinnati, and was transferred to Baltimore in 1920 as improvement engineer, to become accounting engineer in 1922.

HOLGER JENSEN, engineer and manager of the engineering division of the Maryland Casualty Co., Baltimore, was recently elected a member of the executive committee of the highway traffic standards committee, American Standards Association. As a member of the committee, he will act in an advisory capacity to the standards council on all subjects pertaining to highway traffic standards throughout the country.

CARL L. SVENSEN, of Lubbock, Tex., has been reappointed for a six-year term on the Texas state board of registration for professional engineers. ALLIN F. MITCHELL, of Corsicana, Tex., has been appointed to fill the place held formerly by W. W. TROUT of Lufkin. Other members of the state board are: GEORGE R. BROWN, Houston; FRED E. RIGHTOR, San Antonio; ED C. CONNOR, Dallas, and J. S. HUDNALL, Tyler. Righter is secretary, with offices in Austin. (This news item is republished due to errors in the spelling of the names in a similar item published October 5. —*Editors*)

MEETINGS

AMERICAN SOCIETY OF REFRIGERATING ENGINEERS, Air Conditioning Conference, Lehigh University, Bethlehem, Pa., Nov. 10–11.

NATIONAL RECLAMATION ASSOCIATION, annual convention, Denver, Colo., November 14-16. Directors meeting Nov. 12-13.

NATIONAL CONSTRUCTION CONFERENCE, Chamber of Commerce of the United States, Washington, D. C., Nov. 16–17.

HIGHWAY RESEARCH BOARD, annual meeting, National Academy of Sciences, Washington, D. C., Dec. 5–8.

REGIONAL AND LOCAL

AMERICAN WATER WORKS ASSOCIATION, section meetings: Charlotte, N. C., Nov. 6–8.

AMERICAN SOCIETY OF CIVIL ENGINEERS, Mid-South section, Greenville, Miss., Nov. 6–7.

DEEPWELL PUMP CONFERENCE, University of California, Berkeley, Calif., Nov. 10.

ASSOCIATION OF WESTERN STATE ENGINEERS, Shirley-Savoy Hotel, Denver, Nov. 12-13.

AMERICAN WELDING SOCIETY, Pittsburgh Section, Mellon Institute, Pittsburgh, November 15.

AMERICAN SOCIETY OF CIVIL ENGINEERS, Arizona section, annual fall meeting, Phoenix, Ariz., November 25.

NEBRASKA IRRIGATION ASSOCIATION, annual convention, North Platte, Nebr., Dec. 7–8.

EASTERN PHOTOELASTICITY CONFERENCE, Massachusetts Institute of Technology, Cambridge, Mass., Dec. 9.

ELECTION AND ACTIVITIES

NEW OFFICERS of the Engineers Club of Fargo, N. D., are: H. C. Akeley, president; J. H. Grant, vice president; W. H. Plath, secretary-treasurer, and B. J. Reger, director.

POLLUTION OF TEXAS rivers by discharge from industrial plants was one of the subjects for study at the Oct. 18 meeting of the Southwest section of the American Waterworks Association at Dallas, Tex. Lewis A. Quigley and Chester Cohen of Austin and J. E. G. Silver, North Texas State Teachers College, were the principal speakers. During the business session, M. B. Cunningham of Oklahoma City was elected chairman of the section, to succeed Albert Davis of Austin. A. M. Brenneke of Denison was named vice-chairman. State trustees named are: Arkansas, Bernard Allen of Blytheville; Louisiana, J. J. O'Donnell, of Bossier; Oklahoma, Percy Daniels of Perry, and Texas, T. C. Green of Austin.

FRANZ A. KARTAK, dean of the college of engineering at Marquette University, was elected president of the Milwaukee engineers' society to succeed George G. Post. Other officers elected are: E. F. Vilter, vice-president; W. R. Mueller, secretary-treasurer, and C. R. Dowdy, C. S. Lincoln and A. R. Schmidt, directors.

ABOUT 150 water and sewerage engineers, plant superintendents and operators attended a short course on water and sewerage treatment at the University of Florida Oct. 18 to 21. B. C. Riley, dean of the general extension division, University of Florida, was in charge. Willem Rudolfs, New Brunswick, N. J., was a speaker.

NEWLY ELECTED OFFICERS of the Ohio Conference on Sewage Treatment, which met in Toledo on Oct. 5-6, are: F. E. Harroun, Akron, chairman; B. H. Barton, Findlay, vice-chairman; Bruce M. McDill, Columbus, secretary; A. H. Niles, Toledo, treasurer, and W. D. Sheets, Columbus, member of the executive committee.

BLAKE R. VAN LEER, dean of the college of engineering at North Carolina State College, Raleigh, has been appointed a member of the committee on sections and branches of the Society for the Promotion of Engineering Education. Other members of the committee are: Dean M. L. Enger, University of Illinois, chairman; Dean P. S. Brigler, University of Southern California; H. O. Croft, University of Iowa; H. E. Degler, University of Texas; C. S. Ell, Northwestern University, and M. I. Evinger, University of Nebraska. Van Leer is president of the Southeastern section of the society.

THE EIGHTH ANNUAL CONVENTION of the Structural Engineers Association of California, held Oct. 13-15 at Carmel, Calif., brought together structural engineers from all parts of the state. Subjects discussed included: the effect of structural design on insurance, the field of endeavor for consulting engineers, glass as a structural material, operation of the state engineers' registration law, revisions and enforcement of building codes, schedules of fees, and cooperation with younger engineers. The registration was about 50.

A SURVEYORS CONFERENCE was held in Phoenix, Ariz., the week-end of Oct. 21 under the auspices of the American Society of Civil Engineers. Carl C. Huskinson, project engineer, Arizona State Highway Department, urged adoption of the plane coordinate system for land surveys. A committee was formed to draft amendments for the state legislation to bring about such work. The technical session was given over to the history of surveying in Arizona, the restoration of survey monuments, problems in property surveys and legal aspects to property surveying. John C. Park, president of the Arizona section, presided.

CHARLES C. WEBBER, Minneapolis, Minn., has been re-elected chairman of the board of directors of the Upper Mississippi Waterway Association. Other officers re-elected are: Horace M. Hill, Minneapolis, president; J. S. Clapper, Minneapolis, executive vice-president; J. L. Record, Minneapolis and Harry G. Barnes, St. Paul, vice-presidents; Kingsley Day, Minneapolis, treasurer. A. M. Thompson, La Crosse, Wis., was named to replace B. H. Overton of that city as a director.

THE TEXAS SECTION of the American Society of Civil Engineers recently held a two day meeting at Fort Worth. New officers elected are: R. J. Cummings, Houston, president; E. C. Woodward, Fort Worth, and Hans Helland, San Antonio, vice presidents; John A. Focht, Austin, re-elected secretary-treasurer. Retiring president is Lewis F. Ferguson, Dallas.

ATTENDANCE numbered more than 110 at the sixth annual meeting of the Inland Empire Waterways Association last month at Walla Walla, Wash. Speakers at the meeting included: W. F. Nelson, Capt. Robert H. Elliott, district army engineer at Bonneville; John C. H. Lee, division engineer at Portland, U. S. Army Engineers, and Judge J. B. Campbell, Spokane. Charles Baker, Walla Walla, was re-elected president. Other officers chosen are: H. W. Burgess, Walla Walla, treasurer; Herbert G. West, Walla Walla, executive vice president; J. Barnum, The Dalles, regional director for Oregon; J. W. Shepard, Lewiston, regional director for Washington, and J. Perry Kennewick, regional director for Washington. Members of the executive committee include: Bert Johnson, Ione; C. L. Sweek, Pendleton, and F. V. Gal-

(*Continued on next page*)

Meetings

(Continued from p. 11)

loway, The Dalles, for Oregon; R. S. Erb, Lewiston; Allen Newman, Culdesac, and John Oud, Orofino, for Idaho; B. M. Huntington, Arthur E. Cox and President Baker, all of Walla Walla, for the state of Washington.

DELOS PALMER, dean of the college of engineering, University of Toledo, Ohio, was recently elected president of the Toledo Society of Professional Engineers. Other officers named were: W. E. Hallauer, vice president; C. E. Pettis, secretary-treasurer; C. S. Finkbeiner, civil engineering director; R. M. Batch, mechanical engineering director; G. W. Emery, electrical engineering director; H. J. Wernert, structural engineering director; H. W. Hess, chemical engineering director; and Thomas C. Adams, Wood County representative. Committee chairmen are: George W. Lum, public relations; R. W. Furman, professional relations; B. G. Kesting, membership; George J. Haase, program; and W. P. Sanzenbacher, educational.

AT A RECENT MEETING of the Michigan section of the American Society of Civil Engineers, Alex Dow, president of Detroit Edison Co., and Donald Hubbard Sawyer, national society president, were honor speakers. New president of the Michigan section is Leroy C. Smith, engineer-manager of the Wayne County Road Commission. A. B. Morrill and E. L. Erickson were chosen vice presidents, and George Hubble, secretary.

SHELDON E. DAVIS, president of the Montana State Normal College, was the principal speaker at the banquet closing the 52nd annual convention of the Montana Society of Engineers held in Butte. More than 100 engineers gathered to bring to a close a two-day meeting. During the session S. R. B. Cooke, member of the faculty at the Montana School of Mines, spoke on "Color Photography." C. A. Carpenter, meteorologist in charge of the Weather Bureau at Butte, was also a speaker, as was William F. Flynn, Anaconda, newly elected president. Other new officers elected are: E. R. Rye, Bozeman, first vice president; A. Adami, Montana School of Mines, second vice president; George L. Shue, re-elected secretary, and A. I. Hoem of Butte, and C. A. Lemmon of Anaconda, trustees. George G. Griswold of Butte was in charge of the business session. Past presidents who attended the meeting included R. T. Callender and Eric Therkelson, Bozeman, and C. S. Heidel, Helena.

H. G. SOURS, assistant director and chief engineer of the Ohio State Highway Department, has been nominated for the presidency of the American Road Builders Association for the 1940–1941 term. Nominations for vice presidents are: PAUL B. REINHOLD, secretary-treasurer of Reinhold & Co. Inc., Pittsburgh, Pa.; JOHN E. BALLENGER, Ballenger Construction Co., Lakeland, Fla.; LION GARDINER, Jaeger Machine Co., Columbus, Ohio, and STANLEY ABEL, supervisor of Kern County, Calif. GEORGE F. SCHLESINGER, engineer-director, National Paving Brick Association, Washington, D. C., has been nominated for treasurer. Nominations for directors with the term to end 1943 include: R. L. BALDOCK, state highway engineer of Oregon; ROBERT B. BROOKS, consulting engineer of St. Louis, J. F. CAST, Firestone Tire & Rubber Co., PAUL E. GRIFFITHS, Koppers Co., Pittsburgh, Pa., A. E. O'BRIEN, secretary of the Associated Pennsylvania Constructors, M. P. O'CONNOR, J. C. O'Connor & Sons, Fort Wayne, Ind., and J. E. PENNYBACKER, managing director of the Asphalt Institute, New York. The A.R.B.A. meets in Chicago in January.

CONTRACTS AND CAPITAL

ENGINEERING construction awards for the week total $50,040,000, a decrease of 22 per cent from last week, and 30 per cent below the volume for the corresponding week last year.

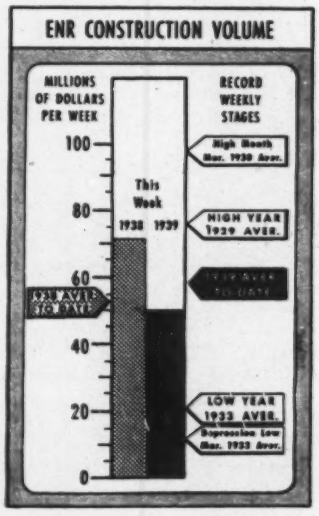
The current week's awards bring 1939 construction to $2,560,354,000, an increase of 11 per cent from the $2,306,671,000 reported for the initial 44-week period last year.

Private awards for the week are 6 per cent above the volume for the 1938 week, the eighth consecutive week that they have topped their respective 1938 values. They are, however, 45 per cent below a week ago. Public construction is 41 per cent lower than a year ago, but exceeds last week by 5 per cent.

In the classified construction groups, waterworks, industrial buildings, earthwork and drainage, and unclassified report higher volumes than in the 1938 week. Waterworks, commercial building and large-scale private housing, and earthwork and drainage top their values of a week ago.

New capital for construction purposes for the week, $17,616,000, is 70 per cent lower than in the corresponding week a year ago. The current week's financing is made up of $14,297,000 in state and municipal bonds, and $3,319,000 in corporate security issues.

New construction financing for the year to date totals $2,251,042,000, a decrease of 34 per cent from the corresponding 44-week period last year.



CONTRACTS

(Thousands of dollars)

	Week Ending Nov. 3 1938	Oct. 26 1939	Nov. 2 1939
Federal	$9,262	$3,987	$8,268
State & Municipal	44,085	25,966	23,017
Total public	$53,347	$29,953	$31,285
Total private	17,666	34,310	18,755
TOTALS	$71,013	$64,263	$50,040
Cumulative 1939 (44 weeks)			$2,560,354
1938 (44 weeks)			$2,306,671

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1938 44 Wk.	1939 44 Wk.
NON-FEDERAL	$2,268,109	$1,123,014
Corp. securities	335,581	188,660
State & Mun.	532,233	448,662
R.E.A. loans	58,009	89,445
R.F.C. loans	100,128	4,600
P.W.A. allot.	808,236	.....
U.S.H.A. loans	232,422	201,647
Fed. Aid—Hwys.	201,500	190,000
FEDERAL	$1,143,645	$1,128,028
TOTAL CAPITAL	$3,411,754	$2,251,042

FHA MORTGAGES

	Week Ending Oct. 29 1938	Oct. 21 1939	Oct. 28 1939
Selected for appraisal	$23,637	$23,342	$21,710*
Cumulative 1939 (43 weeks)			$965,837*
1938 (44 weeks)			$851,763

* Subject to revision.

ENR INDEX NUMBERS

Index Base		1913	1926
Construction Cost	Oct.	236.86	113.87
Building Cost	Oct.	198.50	107.31
Volume	Sept.	190	83

OBITUARY

B. STUART MCKENZIE, engineering graduate of McGill University in 1901 and for many years secretary of the Canadian Engineering Standards Association, died in Ottawa recently. Ill health had forced him to relinquish his duties as secretary of the C.E.S.A. some time ago but he had been retained by the association in an advisory capacity and edited the regular bulletin of the association.

C. C. CORNELL, 39, contractor of Brantford, Ont., died in that city Oct. 21. Cornell had assisted in carrying out a great deal of highway construction in the vicinity of Brantford.

RICHARDSON SAUNDERS, assistant since 1933 to the Secretary of Labor in charge of budget and personnel affairs at Washington, D. C., died in that city Oct. 26 at the age of 62. Following graduation from Rensselaer Polytechnic Institute with a civil engineering degree, he soon became connected with the New York City government. Following several years at New York, in 1924 he took up private engineering work in Florida.

JAMES O. THOMAS, 65, civil engineer and head of the Thomas Surveying Co., Columbus, Ohio, died in Columbus, Oct. 23. He was a graduate of the college of engineering of Ohio State University and for some time had been associated with his son, Daniel F. Thomas, in the engineering business.

EMIL GEPPELT, 82, who had constructed many cement plants in the United States and eastern Canada, died Oct. 25 in Dallas, Tex.

GUSTAV J. FIEBERGER, 87, for 26 years professor of civil and military engineering at West Point, died recently in Washington, D. C. Fieberger graduated from West Point in 1879. The next three years were spent in special study. This was followed by one year of engineering work in Arizona and then he returned to West Point as an instructor. His teaching work was interrupted for a time by river and harbor work in Virginia and North Carolina.

Wide World Photo

LONDON SUBWAYS SAFEGUARDED AGAINST FLOODING

WHEN AIR-RAID warning signals are sounded in London, large flood gates roll quickly into place to block off the subway line running under the Thames River between Waterloo and Charing Cross.

Built up of steel and 13-in. thick the gate shown weighs six tons and can be operated by hand or electrically. The gates are so interlocked that they cannot be closed when a train is passing under the river.

HANS IBSEN, 77, for 42 years a bridge engineer for the Michigan Central R.R., died Sept. 22, in Detroit. Isben joined the Michigan Central in 1890. He worked for a time as chief draftsman in the bridge department, being promoted to bridge engineer in 1905. In 1916 he was appointed special bridge engineer and retired in February, 1931.

IRA L. REEVES, 67, former head of the engineering company bearing his name, died last week in Chicago. Reeves once served as professor of military science at Purdue University, at Miami Military Institute and at the University of Vermont. From 1915-18 he was president of Norwich University and in 1919 was president of the A.E.F. University in Beaune, France.

GUY MCDOWELL, 54, building contractor of Des Moines, died in an auto accident on Oct. 23.

GEORGE C. GOCHNAUER, 74, retired construction engineer, died in Camp Hill, Pa., Oct. 24. Gochnauer had done a great deal of work in street railway construction and in building water and gas plants.

F. M. FOSSETT, 76, retired Birmingham contractor, died recently in Arnold, Md.

PHILIP J. HICKEY, chief inspector for the Pennsylvania General State Authority at Upper Darby, Pa., died Oct. 29 at the age of 60. After receiving a civil engineering degree from Armour Institute, Hickey for 30 years acted as construction manager with the Thompson-Starrett Co. of New York. During the World War he served with the Emergency Fleet Corp. and supervised construction of proving grounds at Aberdeen, Md.

CHARLES H. DANCER, 90, a former chief engineer and deputy minister of public works in the Manitoba government until retiring in 1916, died recently in Winnipeg. Dancer received his engineering education at St. Owens College.

Other recent deaths include: JOHN FRITZ, 55, bridge contractor of Oxford Junction, Ia.; EDGAR JOHNSON, 62, retired building contractor of Milan, N. Y.; LUTHER W. LAGSEN, 58, contractor of Council Bluffs, Ia.; CHARLES CLINTON LEADER, 61, retired civil engineer of Seattle; GERARD F. BURROUGHS, 73, retired building contractor of Seattle; NORMAN C. MCPHERSON, 70, graduate of Gettysburg College and retired engineer of Short Hills, N. J.; WILLIAM G. CRAIG, 70, builder in the Nanaimo, B. C., department of public works, and JOHN T. NEAL, builder, in Buffalo, N. Y.

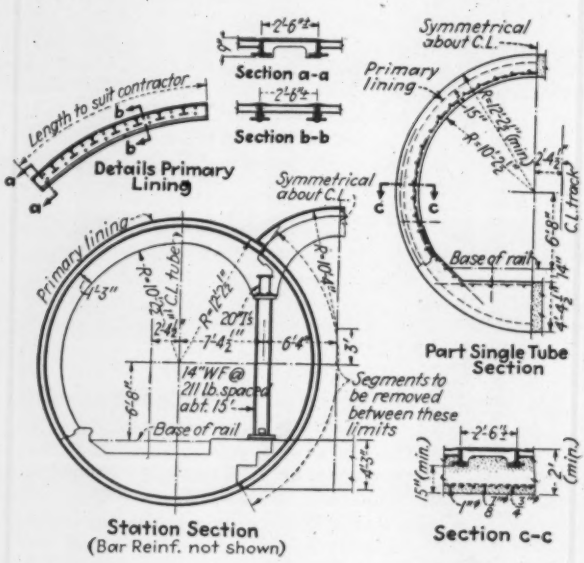
CONTRACT UNIT PRICES

What contractors are bidding on different kinds of construction work

SUBWAY, CHICAGO

OWNER: City of Chicago, Department of Subways and Traction, Edward J. Kelly, Mayor. Ralph H. Burke, Chief Subway Engineer.

PROJECT: Constructing portion of Chicago subway system under South and North State Street, from 11th Street to Chicago River (Contract S-3). Includes approximately 4,050 linear feet of station section; 4,220 linear feet of single-tube section, both of which are shown in the drawing below; and 290 linear feet of special twin-tube section; all constructed in tunnel under compressed air with use of shields. Existing freight tunnels encountered in course of construction to be removed and material disposed of.



CONDITIONS: Contractor to furnish all materials and complete work in 450 calendar days. Wage rates specified are: skilled, $1.05 to $2.00 per hr. in open cut, and $1.42½ to $2.00 in compressed air: semi-skilled, 81¼c. to $1.60 per hr.; and common, 50c. to $1.20 per hr. in open cut, and $1.02½ to $1.35 in tunnels. On marine work, wages range from 99½c. for deck hands to $3.12½ per hr. for divers. Highway, rail, and water transportation facilities available.

BIDS: Three bids were opened August 17, 1939, ranging from the contract low of $8,212,835 to $9,286,000.

LOW BIDDERS:

1. Healy Subway Constr. Co., Chicago, Ill. (contract) $8,212,835
2. Michael Pontarelli & Sons, Chicago, Ill... 8,735,435
3. Griffiths Subway, Inc., Chicago, Ill..... 9,286,000

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Station section	4,050 l. f.	$1,087.00	$1,150.00	$1,310.00
2. Single-tube sect. 20½ ft. ID.	4,220 l. f.	545.00	560.00	636.50
3. Spec. twin-tube sect., ea. tube 15 ft. int. width	290 l. f.	1,045.00	1,200.00	900.00
4. Fill concrete	1,000 c. y.	15.00	11.00	10.20
5. Reinforcing steel	7,500,000 lb.	.0375	.04	.036
6. Steel and misc. metals	3,900,000 lb.	.055	.07	.0425
7. C. I. pipe and misc. castings	790,000 lb.	.07	.08	.095
8. Tunnel excav., spec. struct.	1,600 c. y.	15.00	16.00	10.00
9. Concrete, tunnel, spec. struct.	1,100 c. y.	22.50	23.00	17.35
10. Steel plate seal	5,000 l. f.	2.20	2.10	1.70
11. Conc. bulkheads, freight tunnel	300 c. y.	55.00	60.00	60.00
12. Timber bulkheads	10 M.b.m.	110.00	150.00	130.00
13. Remove conc. in tunnel	10,000 c. y.	25.00	40.00	11.73
14. Remove timber bulkheads	5 M.b.m.	110.00	115.00	25.00
15. Outlet boxes	1,400 ea.	3.30	3.30	3.65
16. Pull boxes and special boxes	14,000 lb.	.60	.50	.56
17. ¾-in. and smaller rigid galv. electr. conduit	24,000 l. f.	.30	.36	.29
18. 1-in. rigid galv. electr. cond.	48,000 l. f.	.40	.40	.40
19. 1¼-in. rigid galv. electr. cond.	2,400 l. f.	.50	.60	.50
20. 1½-in. rigid, galv. elec. conduit	700 l. f.	.60	.90	.67
21. 2-in. rigid, galv. elec. conduit	2,800 l. f.	.80	.70	.92
22. 2½-in. rigid, galv. elec. conduit	200 l. f.	1.00	1.75	1.05
23. 3-in. rigid, galv. elec. conduit	300 l. f.	1.35	1.80	1.25
24. 3½-in. rigid, galv. elec. conduit	1,900 l. f.	1.50	2.00	1.40
25. Added excav. in tunnel	400 c. y.	5.00	5.00	5.00
26. Added excav., open cut	800 c. y.	2.50	2.50	2.50
27. Rock excavation	100 c. y.	5.00	5.00	5.00
28. Added Cl. A conc., tunnel	400 c. y.	12.00	12.00	12.00
29. Added Cl. A conc., open cut	200 c. y.	10.00	10.00	10.00
30. Grout for stopping leaks	300 bbl.	10.00	10.00	10.00
31. Open cut excav., subway struct.	19,000 c. y.	10.25	10.00	11.70
32. Conc., open cut, subway struct.	3,400 c. y.	17.00	18.00	14.40

HIGHWAYS, MARYLAND

OWNER: Maryland State Roads Commission, Baltimore, D. P. Campbell, Towson, Md., engineer.

PROJECT: Grading, drainage, culvert and bridge construction along Philadelphia Road relocation from Northeast towards Elkton, in Cecil County, Md.

CONDITIONS: Project to be completed in 170 days. Contractor to furnish all materials. Rail facilities available for shipping materials. Wages on job are: skilled, 56c. per hr.; semi-skilled, 45c. per hr.; and common labor, 35c. per hr.

BIDS: Eight bids were received May 9, 1939 ranging from the contract low of $233,785 to $299,933.

LOW BIDDERS:

1. Waller Paving Co., Salisbury, Md. (contract) $233,785
2. C. J. Langenfelder & Son, Rosedale, Md..... 241,054
3. Martin T. Firor, Baltimore, Md..... 257,381

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Clear and grub	L.S.	$7,500.00	$6,000.00	$6,500.00
2. Class 1 excavation	406,700 c. y.	.20	.205	.205
3. Class 2 excavation	2,400 c. y.	.50	.50	.55
4. Class 3 excavation	1,025 c. y.	2.00	2.00	2.00
5. Class 4 excavation	1,500 c. y.	3.00	3.50	4.00
6. Borrow	108,000 c. y.	.24	.28	.24
7. Tamped fill	3,800 c. y.	.40	.50	.70
8. 6-in. gravel surf. crse	850 c. y.	1.00	1.00	1.75
9. Cl. A conc., surf. crse	2,775 c. y.	16.00	15.50	22.00
10. Cl. A conc., surf crse., balus	63 c. y.	50.00	60.00	50.00
11. Reinforcing bars	344,500 lb.	.04	.04	.04
12. Fabr. struct. steel	486,000 lb.	.05	.0485	.052
13. 15-in. rein. cem. conc. pipe	2,443 l. f.	1.25	1.35	1.30
14. 18-in. rein. cem. conc. pipe	1,018 l. f.	1.75	2.00	1.70
15. 24-in. rein. cem. conc. pipe	608 l. f.	2.50	2.50	2.50
16. 36-in. rein. cem. conc. pipe	121 l. f.	6.00	5.00	4.90
17. 8-in. cast iron pipe	50 l. f.	1.50	2.00	2.25
18. 12-in. asph. coat. cor. met. pipe	158 l. f.	1.25	1.25	1.40
19. 15-in. asph. coat. cor. met. pipe	555 l. f.	1.50	1.50	1.50
20. 24-in. asph. coat. cor. met. pipe	501 l. f.	2.50	2.25	2.40
21. 30-in. asph. coat. cor. met. pipe	146 l. f.	3.50	3.25	3.25
22. 36-in. asph. coat. cor. met. pipe	163 l. f.	5.00	4.00	4.00
23. 12-in. corr. metal pipe	391 l. f.	1.00	1.00	1.25
24. 15-in. corr. metal pipe	109 l. f.	1.25	1.10	1.35
25. 24-in. corr. metal pipe	40 l. f.	2.25	1.25	3.00
26. 15-in. 90-deg. cor. met. pipe elbow	5 ea.	6.00	4.50	4.50
27. 6-in. vitr. tile underdrain	500 l. f.	.60	.48	.50
28. 6-in. vitr. tile outlets	200 l. f.	.60	.48	.50
29. 5-in. Port. cem. conc. gutter (SC)	5,475 ea.	1.50	2.00	1.75
30. 8-in. Port. cem. conc. flumes (SC)	100 ea.	2.50	3.00	2.20
31. Riprap	640 ton	3.00	3.00	3.00
32. Prot. coat, conc. wk., Sta. 20	L.S.	50.00	60.00	80.00
33. Prot. coat, conc. wk., Sta. 117	L.S.	50.00	70.00	90.00
34. Expansion material, Sta. 231	L.S.	25.00	75.00	60.00
35. Expansion material, Sta. 237	L.S.	25.00	75.00	60.00
36. Trim existing ditches	500 l. f.	.20	.15	.20
37. Type H combination inlet	2 ea.	75.00	100.00	125.00
38. 8-in. perf. corr. met. pipe	500 l. f.	1.00	.80	1.00
39. Standard curb markers	8 ea.	20.00	20.00	38.00